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EXAMINER	
MICHALSKI, JUSTIN I	
ART UNIT	**PAPER NUMBER**
2644	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/058,000	WILCOCK, LAWRENCE	
	Examiner	Art Unit	
	Justin Michalski	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 23 March 2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-45 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-45 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Attorney of record, Allan Lowe, gave authorization for an informal examiners amendment during a telephone interview on 8 June 2004.

The application has been amended as follows:

In claim 1,

On lines 13 through 17;

"an un-collapsed state in which the member sound sources are individually present un-muted in the audio field;

a collapsed state in which the member sound sources are muted and a collection-representing sound sources provides an audible presence for the collection in the audio field;" has been deleted.

Claim Objections

2. Claim 42 is objected to because of the following informalities: Claim 42 contains a period in line 22. See MPEP 608.01(m) Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8, 10, 12-20, 22, 24, 26, 28-33, 35, 37, 39, and 41-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmandt ("Audio Hallway: a Virtual Acoustic Environment for Browsing," ACM 0-58113-034-1/98/11, UIST '98).

Regarding Claim 1, Schmandt discloses an audio user-interfacing method in which items are represented in an audio field (Figure 5) by corresponding synthesized sound sources (sound files disclosed in figure 5) from where sounds related to the items appear to emanate (Schmandt discloses a spatial model of an ordered array of sounds (i.e. synthesized sound sources) about a user's hear) (Figure 5 and Page 167, Column 2, first paragraph under Rooms heading), the method comprising: (a) associating only some of the sound sources into a collection of which they are members (highlighted sound files in figure 5, Schmandt discloses user can listen to four files simultaneously, i.e. collection) (Page 167, Column 2, first paragraph under Rooms heading); and (b) changing the collection in either direction between: an un-collapsed state in which the member sound sources are individually present un-muted in the audio field (Figure 6); a collapsed state in which the member sound sources are muted and a collection-representing sound source provides an audible presence for the collection in the audio field (Schmandt discloses the user can bring a single sound (member sources muted) into focus, i.e. collapsed state) (Page 168, Column 2, lines 5-6); and sound sources that are un-related to said collection remaining present in the audio field independently of the collection state (Figure 5 discloses sources un-related to collection (un-highlighted files) remaining present in the audio field independently of the collection state).

Regarding Claim 2, Schmandt further discloses wherein the collection changes state, at least in one direction, in response to user command (Schmandt discloses the user can bring a single sound into focus (i.e. from un-collapsed to collapsed state) by movement of the head) (Page 168, Column 2, lines 2-6).

Regarding Claim 3, Schmandt further discloses the collection changes state, at least in one direction, automatically upon detection of predetermined trigger conditions (Schmandt discloses when user rotates their head they can bring a single sound into focus, i.e. trigger condition to change state at focal point (Page 168, Column 2, lines 2-6).

Regarding Claim 4, Schmandt discloses Figure 5 where all sound sources (including collection-representing sound source) are present in the audio field when the collection is in its un-collapsed state.

Regarding Claim 5, Schmandt further discloses the collection-representing sound source is muted when the collection is in its un-collapsed state. (Schmandt discloses bringing a single sound source into focus by movement of the head, i.e. collection-representing sound source, (Page 168, Column 2, lines 5-6) which can be any file in figure 6. Figure 6 shows the sources in the un-collapsed state including the two outside files which are lower in amplitude, i.e. muted).

Regarding Claim 6, Schmandt further discloses the change between collection states, at least in one direction, is accompanied by a corresponding sound suggestive of moving to the end state of the current change (Schmandt discloses when user goes to

collapsed state only a single sound is into focus, i.e. suggestive sound) (Page 168, Column 2, lines 2-6).

Regarding Claim 8, Schmandt further discloses when the collection is in its collapsed state (i.e. single sound in focus), the collection-representing sound source provides an audio label for the collection (i.e. audio sound being played from single source), this label being repeated at intervals (Schmandt discloses a single sound in focus, i.e. continuous interval) (Page 168, Column 2, lines 2-6).

Regarding Claim 10, Schmandt further discloses when the collection is in its collapsed state, the collection-representing sound source is used to provide audio notifications of events related to the items represented by the member sound sources (Schmandt discloses each collection is a set of related audio files which would inherently provide related audio notifications represented by the member sound sources (Page 164, Column 2, Paragraph 3).

Regarding Claim 12, Schmandt further discloses the collection is associated with a respective audio-field reference (i.e. head position) relative to which the member sound sources of the collection are positioned (Figures 5 and 6), other sound sources, in the audio field being positioned relative to one or more further audio-field references (Figure 5), the audio-field references being independently movable relative to a presentation reference determined by a mounting configuration of audio output devices used to synthesize said sound sources, with movement of a said audio-field reference relative to the presentation reference resulting in corresponding movement of the associated sound sources (Files are arrayed in front of users head (i.e. reference) who

can fade in and out or neighboring sounds with head rotation (i.e. independently moveable) (Figure 5 and Page 167, Column 2, first paragraph under Rooms heading). Head position (i.e. reference) is gained from a sensor mounted on the headphones (Page 169, column 1, first full paragraph).

Regarding Claim 13, Schmandt further discloses the audio field reference associated with the collection is world-stabilized (head position is gained from a position sensor mounted on the headphones (i.e. stabilized relative to the world) (Page 169, column 1, first full paragraph) and the member sound sources represent augmented reality services, each member sound source being positioned relative to the audio field reference of the collection such that for a user located in a notional reference position, the sound sources lies in the same direction as a corresponding real-world location associated with the augmented reality service represented by the sound source (Audio files are positioned around users head who can fade in and out of neighboring sounds with head rotation) (Figure 5 and Page 167, Column 2, first paragraph under Rooms heading).

Regarding Claim 14, Schmandt further discloses the audio field is rendered by apparatus including audio output deices according to sound-source data indicative of the rendering position and audibility of the each sound source in the audio field, the muting and un-muting of said member sound sources to collapse and un-collapse the collection being effected by changing sound-source data for these sound sources to appropriately set the audibility of the sources (Room audio is produced by separate PCs and audio spatialization software along with a head position sensor mounted on

headphones as audio output device) (Paragraph bridging pages 189 and 169; and page 169 first full paragraph).

Regarding Claim 15, Schmandt discloses a single file can be brought out of focus by turning the head, i.e. un-collapsing the collection (Page 168, column 2, lines 2-6). Schmandt further discloses that movement of the head results in movement of the sources (Page 168, Column 2, lines 2-5). Therefore, it is inherent that when the user turns their head to un-collapse the collection other sound sources (Figure 5) would have their positions adjusted in the audio field with respect to the users head.

Regarding Claim 16, Schmandt discloses an audio user interface in which items are represented in an audio field by corresponding synthesized sound sources from where sounds related to the items appear to emanate (Schmandt discloses a spatial model of an ordered array of sounds (i.e. synthesized sound sources) about a user's head) (Figure 5 and Page 167, Column 2, first paragraph under Rooms heading), the apparatus comprising: storage means for storing data on the sound sources (PCs and audio servers) (Page 168-169 discussion under system architecture), this data including audibility data for controlling the audibility of the sound sources in the audio field (audio spatialization software (Paragraph bridging pages 168 and 169), and collection data for associating only some of the sound sources into a collection of which those sound sources are members (highlighted sound files in figure 5, Schmandt discloses user can listen to four files simultaneously, i.e. collection) (Page 167, Column 2, first paragraph under Rooms heading) and for further associating with the collection a collection-representing sound source (headphones) (Page 169, column 1, first full paragraph);

rendering-position determining means (sensor mounted on headphones) (Page 169, column 1, first full paragraph) for determining, for each said sound source, an associated rendering position at which the sound source is to be synthesized to sound in the audio field (user can fade in and out of sounds with head rotation) (Figure 5, and Page 167, Column 2, first paragraph under Rooms heading); collection–control means for changing the collection in either direction between un-collapsed (Figure 6) and collapsed (Schmandt discloses the user can bring a single sound into focus, i.e. collapsed) (Page 168, Column 2, lines 5-6) states and for correspondingly setting the audibility data of the associated sound sources such that: in the un-collapsed state of the collection, the member sound sources are audible at their respective rendering positions (sounds play in an array positioned around the users head) (Page 167, Column 2, first paragraph under Rooms heading); in the collapsed state of the collection, the member sound sources are muted and the collection-representing sound source provides an audible presence for the collection in the audio field (Schmandt discloses the user can bring a single sound into focus, i.e. others muted) (Page 168, Column 2, lines 5-6); and rendering means (PCs, software, and headphones) (Pages 168-169 discussion under system architecture), including audio output devices (i.e. headphones), for generating an audio field in which said sound sources are synthesized at their associated rendering positions and with the audibility of the collection-related sound sources set by said collection-control means, the rendering means being arranged to present in said audio field, independently of the current state of said collection, those sound sources that are unrelated to said collection (Figure 5 discloses

sources un-related to collection (un-highlighted files) remaining present in the audio field independently of the collection state).

Regarding Claim 17, Schmandt further discloses wherein the collection-control means includes user input means for changing the collection state, at least in one direction (Schmandt discloses the user can bring a single sound into focus (i.e. from un-collapsed to collapsed state) by movement of the head) (Page 168, Column 2, lines 2-6).

Regarding Claim 18, Schmandt further discloses the collection-control means is arranged to automatically change the state of the collection, at least in one direction, upon detection of predetermined trigger conditions (Schmandt discloses when user rotates their head they can bring a single sound into focus, i.e. trigger condition at focal point to change state (Page 168, Column 2, lines 2-6).

Regarding Claim 19, Schmandt further discloses the collection-control means is arranged to set the audibility data of the collection-representing sound source such that this source remains present in the audio field when the collection is in its un-collapsed state. (Schmandt discloses in Figure 5 where all sound sources (including collection-representing sound source) are present in the audio field when the collection is in its un-collapsed state.)

Regarding Claim 20, Schmandt further discloses the collection-control means is arranged to set the audibility data of the collection-representing sound source such that this source is muted in the audio field when the collection is in its un-collapsed state. (Schmandt discloses bringing a single sound source into focus by movement of the

head, i.e. collection-representing sound source, (Page 168, Column 2, lines 5-6) which can be any file in figure 6. Figure 6 shows the sources in the un-collapsed state including the two outside files which are lower in amplitude, i.e. muted.)

Regarding Claim 22, Schmandt further discloses wherein when the collection is in its collapsed state (i.e. single sound in focus), the collection-representing sound source provides an audio label for the collection, this label being repeated at intervals (Schmandt discloses a single sound in focus, i.e. continuous interval) (Page 168, Column 2, lines 2-6).

Regarding Claim 24, Schmandt further discloses notification means arranged when the collection is in its collapsed state, to provide via the collection-representing sound source, audio notifications of events related to the items represented by the member sound sources (Schmandt discloses each collection is a set of related audio files which would inherently provide related audio files (notifications) represented by the member sound sources (Page 164, Column 2, Paragraph 3).

Regarding Claim 26, Schmandt further discloses the rendering-position determining means comprises: means for setting the location of each said collection member sound source relative to an audio-field reference (audio files (i.e. sound sources) can be faded in and out of through head rotation (i.e. setting location)) (Figure 5, Page 167, column 2, first paragraph under heading of Rooms); means for controlling an offset between the audio field reference (Figure 5) and a presentation reference (headphones), the presentation reference being determined by a mounting configuration of the audio output devices (headphones and position sensor on head) (Page 169, first

full paragraph); and means for deriving the rendering position of each sound source based on the location of the sound source in the audio field and said offset (audio spatialization software (Page 168 and 169 discussion under system architecture).

Regarding Claim 28, Schmandt further discloses the said means for setting an offset between the audio field reference (Figure 5) and a presentation reference (headphones), comprises user input means for enabling a user to change said offset (user can fade in and out of neighboring sounds with head rotation) (page 167, column 2, first paragraph under heading Rooms), and stabilization means (position sensor) (Page 169, column 1, first full paragraph) for varying the said offset such as to stabilize the audio field reference relative the world.

Regarding claim 29, Schmandt discloses an apparatus for providing an audio user interface in which items are represented in an audio field corresponding synthesized sound sources from where sounds related to the items appear to emanate (Schmandt discloses a spatial model of an ordered array of sounds (i.e. synthesized sound sources) about a user's head) (Figure 5 and Page 167, Column 2, first paragraph under Rooms heading), the apparatus comprising: a data store for storing data on the sound sources (PCs and audio servers) (Page 168-169 discussion under system architecture), this data including audibility data for controlling the audibility of the sources in the audio field (audio spatialization software (Paragraph bridging pages 168 and 169), and collection data for associating only some of the sound sources into a collection of which those sound sources are members (highlighted sound files in figure 5, Schmandt discloses user can listen to four files simultaneously, i.e. collection) (Page

167, Column 2, first paragraph under Rooms heading) and for further associating with the collection a collection-representing sound source (headphones) (Page 169, column 1, first full paragraph); a rendering-position determining arrangement (sensor mounted on headphones) (Page 169, column 1, first full paragraph) operative to determine, for each said sound source, an associated rendering position at which the sound source is to be synthesized to sound in the audio field (user can fade in and out of sounds with head rotation) (Figure 5, and Page 167, Column 2, first paragraph under Rooms heading); a collection-control arrangement arranged to change the collection in either direction between un-collapsed (Figure 6) and collapsed states (Schmandt discloses the user can bring a single sound into focus, i.e. collapsed) (Page 168, Column 2, lines 5-6) and to correspondingly set the audibility data of the collection-related sound sources such that: in the un-collapsed state of the collection, the member sound sources are audible (sounds play in an array positioned around the users head) (Page 167, Column 2, first paragraph under Rooms heading); in the collapsed state of the collection, the member sound sources are muted and the collection-representing sound source provides an audible presence for the collection in the audio field (Schmandt discloses the user can bring a single sound into focus, i.e. others muted) (Page 168, Column 2, lines 5-6); and a rendering subsystem, including audio output devices (PCs, software, and headphones) (Pages 168-169 discussion under system architecture), arranged to generate an audio field in which said sound sources are synthesized at their associated rendering positions with the audibility of the collection-related sound sources set by said collection-control arrangement, the rendering arrangement being arranged to present in

said audio field, independently of the current state of said collection, any said sound sources that are unrelated to said collection (Figure 5 discloses sources un-related to collection (un-highlighted files) remaining present in the audio field independently of the collection state).

Regarding Claim 30, Schmandt further discloses wherein the collection-control arrangement includes user input means for changing the collection state, at least in one direction (Schmandt discloses the user can bring a single sound into focus (i.e. from un-collapsed to collapsed state) by movement of the head) (Page 168, Column 2, lines 2-6).

Regarding Claim 31, Schmandt further discloses the collection-control arrangement is arranged to automatically change the state of the collection, at least in one direction, upon detection of predetermined trigger conditions (Schmandt discloses when user rotates their head they can bring a single sound into focus, i.e. trigger condition at focal point to change state (Page 168, Column 2, lines 2-6).

Regarding Claim 32, Schmandt further discloses Figure 5 where all sound sources (including collection-representing sound source) are present in the audio field when the collection is in its un-collapsed state.

Regarding Claim 33, Schmandt further discloses the collection-control arrangement is arranged to set the audibility data of the collection-representing sound source such that this source is muted in the audio field when the collection is in its un-collapsed state. (Schmandt discloses bringing a single sound source into focus by movement of the head, i.e. collection-representing sound source, (Page 168, Column 2,

lines 5-6) which can be any file in figure 6. Figure 6 shows the sources in the un-collapsed state including the two outside files which are lower in amplitude, i.e. muted.)

Regarding Claim 35, Schmandt further discloses wherein when the collection is in its collapsed state (i.e. single sound in focus), the collection-representing sound source provides an audio label for the collection, this label being repeated at intervals (Schmandt discloses a single sound in focus, i.e. continuous interval) (Page 168, Column 2, lines 2-6).

Regarding Claim 37, Schmandt further discloses notification arrangement arranged when the collection is in its collapsed state, to provide via the collection-representing sound source, audio notifications of events related to the items represented by the member sound sources (Schmandt discloses each collection is a set of related audio files, which would inherently provide related audio files (notifications) represented by the member sound sources (Page 164, Column 2, Paragraph 3).

Regarding Claim 39, Schmandt further discloses the rendering-position determining means comprises: a setting arrangement for setting the location of each said collection member sound source relative to an audio-field reference (audio files (i.e. sound sources) can be faded in and out of through head rotation (i.e. setting location)) (Figure 5, Page 167, column 2, first paragraph under heading of Rooms); a control arrangement for controlling an offset between the audio field reference (Figure 5) and a presentation reference (headphones), the presentation reference being determined by a mounting configuration of the audio output devices (headphones and position sensor on head) (Page 169, first full paragraph); and a deriving arrangement arranged to deriving

the rendering position of each sound source based on the location of the sound source in the audio field and said offset (audio spatialization software (Page 168 and 169 discussion under system architecture).

Regarding Claim 41, Schmandt further discloses the said setting arrangement for setting an offset between the audio field reference (Figure 5) and a presentation reference (headphones), comprises user input means for enabling a user to change said offset (user can fade in and out of neighboring sounds with head rotation) (page 167, column 2, first paragraph under heading Rooms), and stabilization means (position sensor) (Page 169, column 1, first full paragraph) for varying the said offset such as to stabilize the audio field reference relative the world.

Regarding Claim 42, Schmandt discloses an apparatus for driving an audio device via an audio user interface (headphones and position sensor on head) (Page 169, first full paragraph) in which items are represented in an audio field by corresponding synthesized sound sources from which sounds related to the items appear to emanate (Figure 5), the apparatus comprising: a data store for storing data on the sound sources (PCs and audio servers) (Page 168-169 discussion under system architecture), the stored data including audibility data for controlling the audibility of the sources in the audio field (audio spatialization software (Paragraph bridging pages 168 and 169), and collection data for associating only some of the sound sources into a collection of which those sound sources are members and for further associating with the collection a collection-representing sound source (highlighted files of Figure 5, i.e. collection); a processor arrangement for: (a) determining for each of said sound sources

a respective associated rendering position at which the sound source is to be synthesized to sound in the audio field (PCs and audio servers) (Page 168-169 discussion under system architecture); (b) changing the collection in either direction between un-collapsed (Figure 6) and collapsed states (one sound in focus, Page 168, Column 2, lines 5-6) and to correspondingly set the audibility data of the collection-related sound sources (audio spatialization software (Paragraph bridging pages 168 and 169) such that: in the un-collapsed state of the collection, the member sound sources are audible at their respective rendering positions (Figure 6); in the collapsed state of the collection, the member sound sources are muted and the collection-representing sound source provides an audible presence for the collection in the audio field (Schmandt discloses the user can bring a single sound (member sources muted) into focus) (Page 168, Column 2, lines 5-6); and (c) generating signals for causing an audio field in which said sound sources are synthesized at their associated rendering positions with the audibility of the changed collection-related sound sources (audio field of Figure 6), the signals being such that said audio field is presented independently of the current state of said collection, any said sound sources that are unrelated to said collection (Figure 5 discloses sources un-related to collection (un-highlighted files) remaining present in the audio field independently of the collection state).

Regarding Claim 43, Schmandt further discloses an audio output device connected to be driven by the signals (Headphones, Page 169, first full paragraph).

Regarding Claim 44, Schmandt discloses an apparatus for driving an audio device via an audio user interface (headphones and position sensor on head) (Page

169, first full paragraph) in which items are represented in an audio field by corresponding synthesized sound sources from which sounds related to the items appear to emanate (Figure 5), the apparatus comprising: a data store for storing data on the sound sources (PCs and audio servers) (Page 168-169 discussion under system architecture), the stored data including audibility data for controlling the audibility of the sources in the audio field (audio spatialization software (Paragraph bridging pages 168 and 169), and collection data for associating only some of the sound sources into a collection of which those sound sources are members and for further associating with the collection a collection-representing sound source (highlighted files of Figure 5, i.e. collection); a processor arrangement (PCs and audio servers) (Page 168-169 discussion under system architecture) for: changing the collection in either direction between: an un-collapsed state in which the member sound sources are individually present un-muted in the audio field (Figure 6); a collapsed state in which the member sound sources are muted and a collection-representing sound source provides an audible presence for the collection in the audio field (Schmandt discloses the user can bring a single sound (member sources muted) into focus, i.e. collapsed state) (Page 168, Column 2, lines 5-6); and for causing sound sources that are un-related to said collection remaining present in the audio field independently of the collection state (Figure 5 discloses sources un-related to collection (un-highlighted files) remaining present in the audio field independently of the collection state).

Regarding Claim 45, Schmandt further discloses sound sources connected to the apparatus for deriving the audio field (Headphones, Page 169, first full paragraph).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmandt as applied to claim 1 above in view of Sibbald (US Patent 6,498,857).

Regarding Claim 7, Schmandt discloses a method as stated apropos of claim 1 above. Schmandt does not disclose the change between states is accompanied by moving the member sound sources through the audio field between their normal locations and the locations of the collection-representing sound source, the direction of this movement being dependent on the end state of the current change. Sibbald discloses a method of synthesizing an audio signal by changing from a collection of sound sources (Figure 5, sources A, B, C, and D) to a point source, i.e. collection-representing sound source (Figure 5, point VP) (Column 6, lines 51-55). Sibbald discloses when a virtual image is passing (i.e. moving member sound sources) the listener at a distance a point source (Figure 5, point VP) is sufficient to simulate the image as shown in Figure 5 (Column 6, lines 51-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to move

member sound sources towards the collection-representing sound source in order to produce a sufficient and realistic virtual signal as disclosed by Sibbald.

Regarding Claim 9, Schmandt discloses a method as stated apropos of claim 1 above but does not disclose when the collection is in its collapsed state, the collection-representing sound source outputs at least extracts of the sound associated with the collection member sound sources when un-collapsed. Sibbald discloses a method of synthesizing an audio signal by changing from a collection of member sound sources, i.e. un-collapsed (Figure 5, sources A, B, C, and D) to a point source, i.e. collapsed (Figure 5, point VP) (Column 6, lines 51-55). Sibbald discloses when a virtual image is passing the listener at a distance; a point source (Figure 5, point VP) is sufficient to simulate the image (Column 6, lines 51-55). In order to represent the sources A, B, C, D as a point source, it is inherent that the point source would output sounds associated with the member sound sources. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to output sounds associated with member sound sources in order to provide a sufficient and realistic virtual signal as disclosed by Sibbald.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmandt as applied to claim 1 above in view of McKiel, Jr. (US Patent 6,046,722). Schmandt discloses a method as stated above apropos of claim 1 but does not disclose using an audio label for selecting services. McKiel, Jr. discloses Figure 4 with audio label 42 and 44 which represent icons on a computer screen. When a curser moves

closer to the icon an audible signal is generated which indicates this to a visually impaired user (Column 6, lines 5-7). The user would then select the icon for some sort of function or service (Paragraph bridging columns 5 and 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an audio label for services to help visually impaired users select a certain function or service as taught by McKiel, Jr.

8. Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmandt as applied to claim 16 above in view of Sibbald (US Patent 6,498,857). Schmandt discloses a method as stated apropos of claim 16 above. Schmandt does not disclose modifying the rendering positions of the member sound sources such that they move through the audio field between their normal positions and the positions of the collection-representing sound source. Sibbald discloses a method of synthesizing an audio signal by changing from a collection of sound sources (Figure 5, sources A, B, C, and D) to a point source, i.e. collection-representing sound source (Figure 5, point VP) (Column 6, lines 51-55). Sibbald discloses when a virtual image is passing (i.e. moving member sound sources) the listener at a distance a point source (Figure 5, point VP) is sufficient to simulate the image as shown in Figure 5 (Column 6, lines 51-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the rendering positions of the member sound sources towards the collection-representing sound source in order to produce a sufficient and realistic virtual signal as disclosed by Sibbald.

Regarding Claim 23, Schmandt discloses a method as stated apropos of claim 16 above but does not disclose when the collection is in its collapsed state, the collection-representing sound source outputs at least extracts of the sound associated with the collection member sound sources when un-collapsed. Sibbald discloses a method of synthesizing an audio signal by changing from a collection of member sound sources, i.e. un-collapsed (Figure 5, sources A, B, C, and D) to a point source, i.e. collapsed (Figure 5, point VP) (Column 6, lines 51-55). Sibbald discloses when a virtual image is passing the listener at a distance, a point source (Figure 5, point VP) is sufficient to simulate the image (Column 6, lines 51-55). In order to represent the sources A, B, C, D as a point source, it is inherent that the point source would output sounds associated with the member sound sources. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to output sounds associated with member sound sources in order to provide a sufficient and realistic virtual signal as disclosed by Sibbald.

9. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmandt as applied to claim 16 above in view of McKiel, Jr. (US Patent 6,046,722). Schmandt discloses an apparatus as stated above apropos of claim 16 but does not disclose using an audio label for services. McKiel, Jr. discloses Figure 4 with audio label 42 and 44 which represent icons on a computer screen. When a curser moves closer to the icon an audible signal is generated which indicates this to a visually impaired user (Column 6, lines 5-7). The user would then select the icon for some sort

of function or service (Paragraph bridging columns 5 and 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an audio label for services to help visually impaired users select a certain function or service as taught by McKiel, Jr.

10. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmandt as applied to claim 26 above in view of Sibbald (US Patent 6,498,857). Schmandt discloses a device as stated above apropos of claim 26 and further discloses a head position sensor mounted on the headphones (page 169, column 1, first full paragraph) which makes the device stabilized with reference to the world. Schmandt does not disclose the sources corresponding to the same direction as real-world locations. Sibbald discloses a method of synthesizing an audio signal having a virtual sound source. Figure 5 discloses a plurality of sound sources (A through D) from where sound appears to emanate (Column 6, lines 53-61). These sound sources lie in the same direction as they would in a real-world location. Sibbald further discloses synthesis being representative of the real physical situation producing a more realistic effect (Column 4, lines 13-16). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have audio sources having an associated real-world location to produce a more realistic sound output and effect.

11. Claims 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmandt as applied to claim 29 above in view of Sibbald (US Patent 6,498,857).

Regarding Claim 34, Schmandt discloses a method as stated apropos of claim 29 above. Schmandt does not disclose modifying the rendering positions of the member sound sources such that they move through the audio field between their normal positions and the positions of the collection-representing sound source. Sibbald discloses a method of synthesizing an audio signal by changing from a collection of sound sources (Figure 5, sources A, B, C, and D) to a point source, i.e. collection-representing sound source (Figure 5, point VP) (Column 6, lines 51-55). Sibbald discloses when a virtual image is passing (i.e. moving member sound sources) the listener at a distance a point source (Figure 5, point VP) is sufficient to simulate the image as shown in Figure 5 (Column 6, lines 51-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the rendering positions of the member sound sources towards the collection-representing sound source in order to produce a sufficient and realistic virtual signal as disclosed by Sibbald.

Regarding Claim 36, Schmandt discloses a method as stated apropos of claim 29 above but does not disclose when the collection is in its collapsed state, the collection-representing sound source outputs at least extracts of the sound associated with the collection member sound sources when un-collapsed. Sibbald discloses a method of synthesizing an audio signal by changing from a collection of member sound sources, i.e. un-collapsed (Figure 5, sources A, B, C, and D) to a point source, i.e. collapsed (Figure 5, point VP) (Column 6, lines 51-55). Sibbald discloses when a virtual image is passing the listener at a distance, a point source (Figure 5, point VP) is

sufficient to simulate the image (Column 6, lines 51-55). In order to represent the sources A, B, C, D as a point source, it is inherent that the point source would output sounds associated with the member sound sources. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to output sounds associated with member sound sources in order to provide a sufficient and realistic virtual signal as disclosed by Sibbald.

12. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmandt as applied to claim 29 above in view of McKiel, Jr. (US Patent 6,046,722). Schmandt discloses an apparatus as stated above apropos of claim 29 but does not disclose using an audio label for services. McKiel, Jr. discloses Figure 4 with audio label 42 and 44 which represent icons on a computer screen. When a curser moves closer to the icon an audible signal is generated which indicates this to a visually impaired user (Column 6, lines 5-7). The user would then select the icon for some sort of function or service (Paragraph bridging columns 5 and 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an audio label for services to help visually impaired users select a certain function or service as taught by McKiel, Jr.

13. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmandt as applied to claim 39 above, and further in view of Sibbald (US Patent 6,498,857). Schmandt discloses an apparatus as stated above apropos of claim 39 and

further discloses a head position sensor mounted on the headphones (page 169, column 1, first full paragraph) which makes the device stabilized with reference to the world. Schmandt does not disclose the sources corresponding to the same direction as real-world locations. Sibbald discloses a method of synthesizing an audio signal having a virtual sound source. Figure 5 discloses a plurality of sound sources (A through D) from where sound appears to emanate (Column 6, lines 53-61). Sibbald further discloses synthesis being representative of the real physical situation producing a more realistic effect (Column 4, lines 13-16). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have audio sources having an associated real-world location to produce a more realistic sound output and effect.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Michalski whose telephone number is (703)305-5598. The examiner can normally be reached on 8 Hours, 5 day/week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JIM

FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER